# CURRENT NOTES

The Newsletter for ATARI Users of Maryland, D.C. and Northern Virginia

Volume 3, Number 11
November, 1983

## NOVATARI NOTES

November 13: SWAP Meet

At the November meeting of the Novatari Group, we will be having a SWAP Meet. Everyone is welcome. Bring any kind of hardware that you want to trade or sell. You can bring software too, but it must be original and copyrighted. We will also have some dealers there, such as STS Video which will be there to help you with any technical or diagnostic problems that you may have with your Atari. The Program Store will also be there with software at reduced rates. So come one, come all to the greatest SWAP meet this Fall. For more information, call Rene Hertz at (703) 860-2046.

The Novatari Group now has a new disk librarian. M. Evan Brooks generously volunteered for the job and is currently sorting through the programs. If you need to reach him, his number is (703) 354-4482.

The position of Program Chairman is still open. Rene Hertz will be retiring rom the position in January. He has volunteered to take on the position of Assistant Program Chairman. For more information, call Steve Steinberg at (703) 435-2962.

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## NOVATARI MEETINGS

are on the second Sunday of the month. Novatari meets in the Greenbriar Community Center, on Stringfellow Road in Chantilly, Virginia. Stringfellow Road, also known as Route 645, runs south from US 50 a little more than two miles west of the Fair Oaks Shopping Mall, which is at the intersection of I-66 and 50. There is a traffic light where Stringfellow Road meets 50. The Greenbriar Community Center is on the left-hand side of Stringfellow Road, 1.4 miles south of 50. There is a small parking lot in front, and a larger on just north of the center (that is, just before you get to it), which is connected with a walkway. The meeting room is available from 5-9 PM. The first couple of hours are normally unstructured, open house style, with people free to come and go and chat with one another as they wish. Organized activities--the business--begin about 7:00 PM, and usually last about an hour, after which there is some more free time before closing.

## DC CURRENTS

November 15: TURBO Boost your 810

The TURBO 810 from Neandrathal Computer Things will be featured at the November meeting of the DC Group. This is a Double Density adapter for the Atari 810 Disk Drive. It has many of the same features as the Chip which was featured at the last meeting.

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## DC GROUP MEETINGS

are held on the third Tuesday of every month in Room 543 of the National Science Foundation offices, 1800 G Street NW, Washington, DC. The closest subway stop is Farragut West, on the Blue and Orange Lines. Take the 18th Street exit, and walk south (against the flow of traffic) down 18th Street for 3 blocks to G Street. The building is on the corner of 18th and G; it can be identified by a sign for the Madison National Bank on the corner. Front entrance is in the middle of the block. Parking is available in the building, for a fee. The entrance is on the west side of 18th Street, between F and G. Meetings begin at 5:30 PM and usually last until 8 or 9.

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## INSIDE

## EDITOR'S NOTES

Staffan Sandberg, Editor

Well, this is my second month as editor and I am still enjoying myself! Its been a lot more work than I expected, but I am happy with the results. I have learned a great deal about the Atari computer (and I thought I had seen almost everything!), and met a lot of interesting people.

As you can see, this month the newsletter is 16 pages long. I had stated earlier that I would like to go to a 24 page version. This does not seem to be possible at this time. Its not the work involved, or the costs of such a newsletter, or a problem getting advertisers. No, the problem is that I just don't have the material to fill that many pages. This month, I only had 1 article from a member and that was from John Brophy (Arcudic Update)!! This is your newsletter. Sure its great to see what other groups are up to (We'll have lots of articles on that), but wouldn't it be fun to see YOUR articles printed up for everyone to read. This newsletter is sent all over the country, and to many parts of the world. Next month, we'll be sending out 600 copies. Please send in your material to CURRENT NOTES, C/O Staffan Sandberg, 11804 Magruder Lane, Rockville, Maryland 20852.

Now that I've gotten that off my chest, I can talk about what's been going on. I have added several new monthly columns. They will be Dear Editor (a place for you to air your feelings and ask your questions), Software Reviews, and the DATA SHEET. Next month, I am adding at least three new columns. They will be Hardware Reviews, New Products, and a column for the beginner written by Captain Computers!

I am pleased to announce that in the near future, we will be joined by the AURA Group of Silver Spring, Maryland in recieving the newsletter. It was decided that it would benefit all involved to have a fair representation in Maryland, DC, and Northern Virginia since we live so close together. When this happens, we will be sending out over 600 copies of the newsletter each month. This means that the cost per group will decrease, the amount of local material will increase (I hope), the amount of advertisers will increase, and the size of the newsletter will increase. This will not make this any less YOUR newsletter. It will still be kept local and will keep you up to date with what is happening with the three groups. I will also have an overview of what happened at the last meetings in each issue. Since I may not be able to make it to each of the meetings, I am counting on you to send me your comments.

Thank you very much for all the wonderful compliments. Goodby for this month.

Have a great Thanksgiving!

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## CURRENT NOTES

CURRENT NOTES is a monthly newsletter sent to the members of the Atari Club of downtown DC and Novatari (the Northern Virginia Atari Users Group). Both of these organizations are independent groups for Atari computer users, and neither group is affiliated in any way with Atari, Inc.

The Editor of CURRENT NOTES is Staffan Sandberg, 11804 Magruder Lane, Rockville, Maryland 20852, telephone (home) 301-881-7437, (office) 301-468-6686. News items, short articles, original programs, classified ads, and any other material of interest to the membership are eagerly solicited.

Membership dues for both groups are $15.00 a year, which includes subscription to CURRENT NOTES. Dues are payable at the beginning of each calendar year. Dues for new members joining during the year are reduced $1.00 for each month which has passed since the first of the year. Dues may be paid at any meeting, or be sent to the editor. Persons living outside the metropolitan Washington DC area may subscribe to CURRENT NOTES for $12.00 per year.

Advertising policy: classified ads are free to members. Commercial advertising rates are: 1/4 page - $15.00, 1/2 page - $25.00, full page $40.00. Camera ready copy must reach the editor by the 15th of the preceeding month. Make checks payable to Staffan B. Sandberg.

# DATA SHEET

## ARMUDIC UPDATE

### The Armudic Bulletin Board is Moving

by John Brophy, SYSOP

Sometime between October 21 and November 1, depending upon equipment delivery times, the Armudic Bulletin Board will move to a new location within the Washington Metro Area. Frank Huband, the developer, owner, and sole SYSOP of the system since its inception over 3 years ago, is finally hanging it up. Several changes will mark the passing of this era.

First, Armudic, named after its phone number, will have a new number (703) 425-6698.

Second, after a slight delay, while the Armudic program is revised, the board will be the first Atari BBS, of which we know, to support 1200 baud. Target date for this update is December 1, but keep dialing in at 300 until you see the notice on the board itself. This upgrade will be transparent to those who dial in at 300 baud.

Finally, since the board is now the joint property of the Downtown Washington and the Novatari Users Groups, and since it has been very hard for members to connect to the board, restrictions will be placed on non-members. Members will continue to have full use of the board and a 30-minute time limit; non members will have a 10-minute limit and will be able to read all messages and menus, but will not be able to upload or download programs, or leave messages. These changes also will not be effective immediately; watch the board for full details. Furthermore, the restrictions are only a first cut at solving the access problem for group members. We will attemp to relax them as much as possible, without denying access to the members.

Last but not least, the good news: the download file will be changed every month, with program disks supplied by the users groups.

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## UPCOMING EVENTS

| | | | |
|---|---|---|---|
| October | 7-30 | Mid-Atlantic Computer Show | Washington, DC |
| November | 5- 6 | 4th San Diego Computer Fair | San Diego, CA |
| | 16-18 | Intro to Micros and App. | Chapel Hill, NC |
| | 17-19 | 5th Annual NE Computer Show | Boston, MA |
| | 17-20 | Computer Showcase EXPO | Washington, DC |
| | 28- | | |
| December | 2 | COMDEX | Las Vegas |
| January | 7-10 | Consumer Electronics Show | Las Vegas |

## CLUB OFFICERS

Current Notes

| | | |
|---|---|---|
| Staffan Sandberg | Editor | (301) 468-6686 |

Armudic BBS

| | | |
|---|---|---|
| John Brophy | SYSOP | (703) 425-6698 |

DC Users Group

| | | |
|---|---|---|
| Frank Huband | President | (202) 527-4770 |
| Fred Stollnitz | Treasurer | (301) 681-5748 |
| Gerald Whitmore | Membership | (301) 459-6164 |
| Bruce Ingalls | Tape Librarian | (703) 430-3287 |
| Bob Danson | Disk Librarian | (703) 780-0758 |
| John Brophy | ANALOG Disk | (703) 425-7169 |

Novatari Users Group

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| Steve Steinberg | President | (703) 435-2962 |
| Frank Potter | Vice President | (703) 225-4225 |
| Rene Hertz | Program Chairman | (703) 860-2046 |
| Curtis Sandler | Treasurer | (703) 734-9533 |
| Tim Kilby | Secretary | (703) 987-8054 |
| M. Evan Brooks | Disk Librarian | (703) 354-4482 |

AURA Users Group

| | | |
|---|---|---|
| Bruce McLendon | President | (301) 587-7890 |
| Dave Haseman | Vice President | (301) 681-5776 |
| Richard Stoll | Membership | (301) 946-8435 |

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## CLASSIFIED

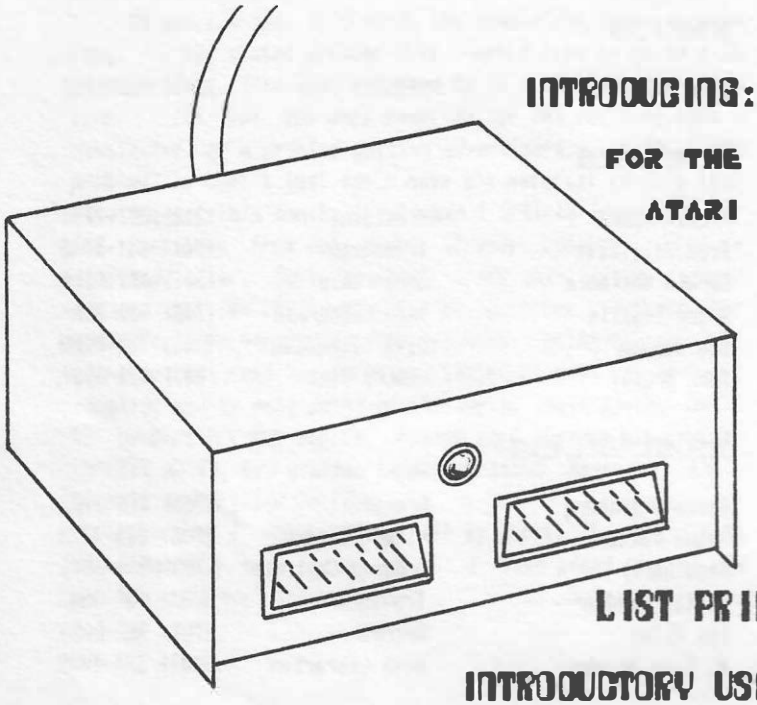
FOR SALE:

| | |
|---|---|
| Success with Math (cassette) | $10.00 |
| ATARI Program-Text Editor (APX) (Disk) | $20.00 |
| Text Formatter (Forms) (APX) (Disk) | $10.00 |

Note: APX has sold the Text Edior and Text Formatter as a word processing package. The combined instructions are included. The combined price is $25.00

Mike Barret
(h) 437-7522
(w) 633-3869

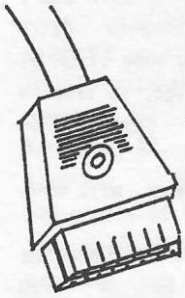
# H.E.L.



INTRODUCING:

FOR THE

ATARI



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# DEAR EDITOR

*This will be a monthly column to help you with any problems you may have. Please send any problems, questions, or things of interest to DEAR EDITOR, 11804 Magruder Lane, Rockville, MD 20852.*

*Editor*

Dear Editor:

As a member it is rather inconvenient for me to come to meetings. The travel distance is a little too long!

I wanted to write to one of the librarians but no address is given. I would like to purchase a library disk. I can send a mailer with the proper postage and even a blank disk if necessary. If such a procedure is available I don't know how to implement it.

Apparently the method of communicaon between members there is via phone lines. That is not entirely practical in my case.

Is there space in CURRENT NOTES for some information to help us "mail order" members? There must be more like me with the same problems.

Howard A Stebbins
North Haven, CT

*I think that the easiest thing to do is to send any questions or orders to me and I will pass them on to the correct persons. We are getting more and more out of town members all the time. We will be having more information addressed primarily to these members in the future.*

*Editor*

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Dear Editor:

I saw a portion of my letter in the August CURRENT NOTES...whoa! The bigtime! And I thought I'd feed you some more good info, for whatever you'd like to make of it.

I bought my Atari 800 in 1980 -- one of the earliest models, long before Atari knew how to build computers. This was waaaay back. Before Atari discovered the magic of gold-plated connectors on memory boards, or the little plastic braces that keep the memory boards from shifting position. Before Atari manufactured the 800 connector that allows you to detach the keyboard when you take it apart. We're talking way back. Pre 8-TIA. I mean, when these machines listed for $1080 and came with BK...

In short, when these things locked up better (and more often) than the vault at Chase Manhattan.

As a matter of fact, the first thing I saw when I initially applied power to my 800 was that '&$% greenish-orange full screen I've come to know so well. Having been versed in the quirks of S-100 systems, I immediately jiggled the boards, and it worked fine.

For a while. But it kept locking up or otherwise malfunctioning randomly.

Jerry Jessop, a fine ATARI technician, recommended cleaning and lubricating the contacts, and gave me a set of plastic braces for the boards. But to no avail. Old Glitchy remained incorrigible.

It got worse as time progressed. The computer was especially intolerant of moves. Takingit to work meant at least a half-hours' ordeal jiggling and reseating boards just to get a READY prompt.

In the past year I've used the computer relatively little. It was just too much trouble. It malfunctioned in every wasy possible. Lockups, refusing to "come up", flaky displays, not communicating with peripherals. Sometimes it'd go two weeks without messing up and then the next day wouldn't perform regardless of coaxing. Sometimes (you'll love this) a technique that worked as well as any was holding it 6" above the marble floor --- and dropping it (and even when it didn't work, I felt better).

It came to a head three weeks ago. I really wanted to write a letter using the word processor. And the machine was having no part of it.

My action was quick and drastic. One moment my wife saw me hunched manuacally over the recalcitrant 800, and the next time she came out from the kitchen, I had the computer disassembled right down to the bare boards, spread out across the dining room table, a soldering iron smouldering ominously to the side.

I'm sure my eyes were a bit wild. "I'M EITHER GOING TO FIX THIS @$%&8%"$ THING, OR SEE TO IT IT NEVER PLAYS ANOTHER GAME OF PAC MAN ---!"

I tapped each IC gently down in its connector, cleaned all board connections, and reassembled. In the case of J101 (Hardware Manual, page 2 of the 800 Mother Board schematic) I took more serious action. I had strong suspicions this long connector was the cause of many of my problems, so agter maing the two main boards together, I broke off the plastic connecor of J101 and soldered its connection together. I then slapped the case on, plugged it in, and held my breath...

Perfect! Solid as a rock! More solid. It hasn't even skipped a beat since.

Thought you'd enjoy the story. I don't recommend my cure to everone, but it saved this computer from being drop-kicked off the front balcony. My only problem now is, I can't get the computer away from my wife. She's a CROSSFIRE addict.

Steve Hull
APO NY

# USR FUNCTION

by Ernie Rice - JACG

ATARI BASIC provides the user with a fuction known as the USR function. This allows the programmer to run an assembler program already in core (the computer's main memory). Information may be passed to the assembler code, as well as returned from the assembler routine.

Passing information to the assembler routine is valuable when you wish to use the same program to perform different tasks depending on the value supplied. The return value on the other hand may be used to detetmine the success or failure of the execution of the assembler program.

As an example, I may write an assembler program to read any sector on disk. This assembler routine will be passed the number of the sector I wish to read and return a value indicating whether or not the READ was successful. Note that without this assembler program, the user would have no way of reading any sector he or she desires.

The format of the USR function is:

Numeric Variable=USR(Address, Value1, Value2, ...ValueN)

Where the Numeric Variable is the name of a numeric variable that contains the return code from the assembler routine which starts at address (or location) "Address" in the computer's memory. Value1, Value2... ValueN are N different values to be supplied to the assembler routine as Input. These must all be positive Integer values. Numbers such as -3, 1.25 are invalid.

So if I code the following USR statement in a BASIC program

```
X=USR(1536,1,2,3)
```

The result would be to cause BASIC to branch to the assembler code located at address 1536 (decimal), and make available as input the values 1,2,3. The return code from the assembler routine will be available to the BASIC program via the variable X.

Note that even though these input and output variables are available, it is still up to the programmer to READ the input variables in the assembler routine and also to store the value in the proper locations for the return code. The assembler or BASIC will not do this on its own.

The locations for the return code are D4, D5 (hexidecimal) or 212, 213 (decimal). Therefore in order for the BASIC program to receive the proper value for the return code, it must be stored in these locations just prior to exiting the assembler routine. The input values are placed on the system's stack.

Why do you need 2 locations for the return code? Well - the ATARI is driven by a 65028 processor. This is an 8 bit processor. Each byte is comprised of 8 bits, with each bit representing a power of 2. Therefore the maximum value able to be stored in one byte raised to the 8th power minus 1.

Format of an 8 bit processor

```
 7  6  5  4  3  2  1  0

128 64 32 16 8  4  2  1
```

Each bit can be in one of two states: ON or OFF (just like a light switch). Numbers stored in this format are called binary numbers. An ON state is indicated by a I and an OFF state is indicated by a 0. The value of the number is determined by adding all of the values of the positions containing a 1 together.

For example:

```
128 64 32 16 8  4  2  1

 0  0  0  0  0  0  0  0 =0
 0  0  0  0  0  0  0  1 =1
 0  0  0  0  0  0  1  0 =2
 0  0  0  0  0  0  1  1 =3  = 2+1
 0  0  0  0  0  1  0  1 =5  = 4+1
 0  0  0  0  1  1  1  1 =15 = 8+4+2+1
 0  1  0  0  0  0  0  0 =128
 1  1  1  1  1  1  1  1 =255= 128+64+32+16+8+4+2+1
```

Since the 6502B is an eight bit processor, each byte can hold a maximum value of 255 (11111111 in bionary). This is not adequate for large numbers, so ATARI set aside two locations D4 and D5 (Hex) 212, 213 (Decimal). The ATARI will take the value stored in the highest location (D5/213) and multiply it by the value of 256, then add the value contained in the lower locations (D4/212) to the result. This allows for a maximum value of (256*256)+256= 65535. We now are able to pass back a value from 0 to 65535 inclusive. This provides the user a much greater range of possible return code.

The same principle is used in the passing of input variables or values as well as in the addressing scheme of the ATARI itself. By the way, did you ever wonder why the ATARI can only address 64K? This is why: Divide 65536/1024 (1024 bytes=1K). You get 64! Since the ATARI uses two bytes to address, it can only access a maximum of 65536 bytes (one extra for a displacement of zero).

You may be wondering why you are being tormented with these bionary, hexidecimal and decimal tidbits? What value is it to me the novice programmer? The answer is simple. BASIC is great and easy to use, but it cannot allow all of the things that assembly can.

# ATARI JOYSTICK MAINTAINANCE

from DAL-ACE

Ok, so you've had your Atari for some time now and you're beginning to discover that the joysticks don't feel the same as they did when you got them out of the box.

Does the response seen sluggish? Maybe the hand grip is too flexible. You might even find that the fire button works only half the time you press it, or even less. All these problems are typical of the Atari joystick. But wait! There's no need to go to a repair shop (and pay $10 a crack!) for these problems, you can quite easily remedy them all yourself for FREE!

When Atari made their joystick, rather than build one which was all metal and cost upwards of fifty dollars, they built one with a simple plastic, replaceable part to take care of all our problems...almost! First we will deal with the replaceable Joystick Insert.

The handgrip of the joystick is hollow and extremely flexible at the base. This part never contacts the pressure pads to connect the circuit. Instead the plastic joystick insert which slips inside the handdrop does. With numerous vigerous games of Star Raiders and Pac Man behind you, the insert encounters plastic fatigue (depending on how hard you lean on your joystick) and sometimes breaks. This causes the sluggishness and increased flexibility of the joystick.

The solution is to replace the insert. These can be bought at any Atari computer store and usually retail at about two dollars each. Next we proceed to open the joystick. Hold the joystick upside down and using a Phillips screwdriver, remove the four screws. Flip the joystick over and lift off the top. Keep your eyes on the fire button as you should immediately put it and its small spring someplace safe. Simply remove the old insert and replace it with the new one. Turn the insert to align the largest protruding nib either north or south with the joystick and it will lock into place. Now holding the handgrip upside down, lower the fire button into its hole and place the spring around the fire button's nib. Next take the circuit board out of the bottom half of the joystick and lower it down on the two posts of the upper half. Take the bottom half of the joystick and carefully lower it onto the top half and before replacing the screws test the fire button to see if it springs back up. If not, the spring fell off and you will have to try rebuilding it all over again. You should be able to feel the difference in the joystick response immediately.

If you find that the joystick won't respond in a certain direction or that the fire button won't react properly then first test the connection at the computer. Wiggle the plug around to see if it helps. When this fails you will have to resort to a little surgery using scotch tape. It is a good idea to pinpoint exactly what functions don't respond. You can trace this by running this simple program:

```
10 PRINT STICK(0),STRIG(0):GOTO 10
```

Using the Atari Reference Manual, check to see if you get the appropriate response from all directions and the fire button. If you are having problems with a diretion it is likely you also have problems with its correponding diagonals, but this may not always be the case.

Open the joystick as previously described and remove the circuit board. Now test the program by directly pressing the pressure pads. Direct yourself to the inoperative pad and examine it. You will probably find that the concave metal disk has slipped. If not, then check the connection at the lower half of the circuit board. If the disk has slipped (it may not be very apparent) then peel back the clear plastic coating starting from the edge that is closest to the damaged pad. Being careful not to upset the other disks, move the slipped one back into place and lower the plastic down over it. Using the check program to confirm that it is aligned properly. It is a good idea to tape the plastic down so it doesn't peel back. Rebuild the joystick as outlined earlier.

# DISK COPYGUARDING

from Frantic - San Antonio

As the president of a well-established ATARI COMPUTER USERS' GROUP, I have seen the development of a new technology arise in the HOME COMPUTER INDUSTRY; the technology of SOFTWARE COPYGUARDING. This article is to be an overview of the software protection techniques which are currently being employed in commercial programs for the ATARI HOME COMPUTERS. It is not my intention to present a tutorial on how to pirate software, or how to implement copyguarding, but merely to present the information and point the direction to sources of further technical details for those who are interested.

To begin, I will re-state a well-known principle regarding the ATARI 810 Disk Drive; indeed, the one principle which makes all of the disk copyguarding possible. The unmodified ATARI 810 is capable of producing ONE and ONLY ONE type of disk format, that is 40 tracks, 18 sectors per track, all the same interleaving of the sector numbers within each track, all with SFB DATA MARKS and GOOD CRC's. This fact is true because ATARI's design engineers put a 502 family CPU, ROM, and RAM inside the 810, and the ROM contains the program or the CPU to make this format, and ONLY this format, whenever the ATARI computer sends a "FORMAT DISK" Command Byte over the Serial I/O bus ($21). I must emphasize that this built-in limitation is the BASIS for COPYGUARDING diskette software for ATARI COMPUTERS. I will briefly discuss each of the six primary copyguard techniques used today with software available for the ATARI 810 Disk Drive. They are: (1) MISSING SECTORS, (2) FORCED CRC ERRORS, (3) ELETED (OR ALTERED) DATA MARKS, (4) DOUBLE SECTOR NUMBERS, (5) 19 SECTOR FORMAT, and the newest on the scene, (6) SKEW ALIGNMENT.

The MISSING SECTOR method of copyguarding is the oldest of all the methods I will discuss. It is also the easiest to simulate (or if you prefer, "to BREAK") with a standard 810. This method consists of writing a track or a group of tracks on a disk, with certain sector(s) missing. These sectors simply were never put on the track, that is, there are absolutely no magnetic DATA MARKS or sector numbers physically there for those sectors! What happens when the disk drive tries to read a sector which is not there? Well, every 810 owner can answer that...the familiar (and much abhorred) "SNARK" sound as the READ/WRITE head does a RE-SEEK. The 1771 FLOPPY DISK CONTROLLER CHIP inside the 810 will return a "RECORD NOT FOUND" error code when this happens, and the programmer must have written a routine within the application code to detect this error condition, and proceed with the program. This RE-SEEK action causes about a 12 second delay in loading the application as well as some needless wear and tear on the 810 Disk Drive! This has to be considered a very poor method for copyguarding, and companies which are still selling disks with this form of protection should be written some letters of disgust from purchasers!

The second copy-protection method of use for the 810 Disk Drive, is the FORCED CRC ERROR technique. CRC stands for CYCLIC REDUNDANCY CHECKSUM and relates to the timing of the clock pulses associated with a given sector within a track. As one might imagine, this method is sensitive to drive speed, and is therefore not a reliable method of protection. Also, it can be simulated by end-users, with standard 810 Disk Drives. There is a problem with the timing and "THIRD PARTY" Data Separator Boards too, which makes this an undesirable method, since owners of these boards may not be able to boot even ORIGINALS!

The third method of copyguarding is the so-called "DELETED DATA MARK" method. It is more proper to call this an ALTERED DATA MARK, since the DATA MARK is present for each sector, but altered from the normal $FB. There are other DATA MARKS readable by 1771, but because a series of FLOPPY DISK CONTROLLER IC's exist for use in future Double Density Machines, the industry should use only the $FB DATA MARK to ensure compatibility with future drives. The DATA MARK for a sector cannot be altered by a standard 810 drive, nor can any "off-the-wall" mishandling of the 810 even simulate a DELETED or ALTERED DATA MARK. This makes this method reliable. There is no R/W HEAD RE-SEEK with this method either, which makes it a non-abusive, and efficient method of copyguarding disks.

Fourthly, there is DOUBLE SECTOR NUMBERS, as a means of protection. This involves writing two sectors with different data, but with the same sector number, into the same track. Of course, the application program must be able to read these two sectors, and differentiate between them, and make use of the data correctly. This is another reliable method of copyguarding, since it cannot be duplicated by a standard 810 Disk Drive, and it does not cause excessive wear.

The fifth type of protection is the 19 SECTOR FORMAT. Normally, a track has room with it for 18 sectors which are used, with enough room left over for one more. This is slightly affected by drive speed, but not enough to make it unreliable. The nineteenth sector is numbered 19 , and contains (hopefully) different data from the other 18 sectors in the same track. This is another very good method of protection, because it is impossible to duplicate without a modified 810, and since it causes no nasty "SNARK" sounds to emit from the drive.

Finally, there is the latest arrival to the world of protection on the 810; SKEW ALIGNMENT. The method to implement this idea has been around since the 810 first went into production, but it was thought that it would be too unreliable a method to be used, so no-one paid it much attention. Then came a new software company, who shall remain anonymous here to save them embarrassment, who

decided that this was the ultimate protection method for the 810! The SKEW is the distance between the physical position of a sector in a track and a sector in another track. The method of protection here, is to measure the time it takes to read from point A to point B on the disk. Clever, Right? What about drive speed? Oops! The software is checking, in effect, the physical position of sectors, relative to other sectors, but without the use of the index hole on the disk. The ATARI 810 Disk Drive has no device to read the index hole, and so the people in charge at the software house boasted that this method could even beat the modified 810's, since they had no way of duplicating the relative positions of tracks. Needless to say, they were wrong, since HAPPY BACKUP revision 4.0 has arrived on the scene! I suspect that this method cannot stand alone as a copyguard technique, and will ultimately either be dropped, or used in combination with other methods.

The remainder of this article will be a review of THE HAPPY CUSTOMIZER PROGRAM, by way of a tutorial of sorts. I will discuss the steps necessary to RE-COPYPROTECT a program, thereby improving the efficeincy of using UNDO COPYGUARDING on an existing proprietary software disk. The intent of this article is primarily to review the HAPPY CUSTOMIZER PROGRAM (HZP) and to show an example of its utility in the UPGRADING of disk protection. The finished product in this instance will be a PROTECTED disk, but with a protection scheme which CANNOT be PIRATED on a STANDARD 810 DISK DRIVE!

To begin, a description of the HZP is in order. The HZP is a special, optional piece of software availavle for the HAPPY 810 ENHANCEMENT, from HAPPY COMPUTING. This program allows the ADVANCED USER (a user with some knowledge of assembly language) to create his/her own special disk copyguarding schemes and sector interleaving. The program does not instruct the user, nor does it produce for the user, the 6502 code to detect the special formats on the application disk, it only produces the special formats for the user, relieving him/her of the tedium of programming the disk drive to do the very same thing.

The example of upgrading copyguarding involves the ATARI BOOKKEEPER diskettes. In their normal form, they come from ATARI in SLOW FORMAT DISKS without HUB RINGS, and can easily be pirated by standard 810 owners. Both the DATA ENTRY disk and the REPORTING DISK have an error sector $16D, which prevents the disk from being copied by standard DOS. By using the GEN.BAS program given with HZP, I created a FORMAT CONTROL FILE (FCF) for the regualr HAPPY 810 ECT FAST FORMAT. The format is slightly faster than ATARI's "fast" format. The FCF is a DOS linked ATASCII data file, compatible with TEXTWIZARD or similar word processors. By calling up my handy dandy text editor, I loaded the filename D:EXAMPLE3.HZP, which was created by GEN.BAS. I went to the documentation for the HZP and looked up sector $16D in TABLE 1, and found that it resded on TRACK $14. I also found in this table, that sector $16D is scetor E in the FCF. I changed the "E" in the source parameters for track $14 to a "D" (this means scetor E is missing, and to use the data from sector D instead.) I then changed the "E" in the destination parameters, to an INVERSE VIDEO "E", which tells the HZP to create an ALTERED DATA MARK on this sector. A quick look at the boot code on the original disk verified that this type of error would still satisfy the copyguarding routine. By using this new FCF to create a COPYGUARD disk of the ATARI BOOKKEEPER DATA ENTRY DISK, I cut the boot-up time from 36.7 seconds on a normal 810 to 28.8 seconds on a normal 810. That is 21.5% FASTER folks! And the disk is still protected, in fact, a standard 810 cannot even simulate this type of error.

The summarize, I created a COPYGUARD disk from a previously COPYGUARDED original. I used the HZP to create the new format, after editing an existing UNIFORM sector interleaving FCF file. The skills required to do this were minimal; some knowledge of Assembly Language, ability to read (or at least convert) HEXADECIMAL, and a little bit of parience. I feel that the HZP was very simple to use, and has the most informative set of instruction I have ever seen!

# SOFTWARE REVIEWS

## Monkey Wrench II

Reviewed by Don Ursem - JACS

MONKEY WRENCH (MW) is a right hand cartridge for the Atari 800 only (who else has a right hand slot?). It works only with the Atari BASIC cartidge inserted in the left slot and in effect, adds commands that are missing from the normal operating system. The old version was interesting, consisting of 4K of code in an 8K cartridge space. The new one, now 8K of code still takes up the same 8K of your memory space, cost only ten bucks more ($59.95), and adds 18 rather than 9 extra functions.

In the old version, the ability to auto line number, renumber, and delete ranges of line numbers of your BASIC program with one command was most useful. You could also show the current variable settings, lock the cursor keys so that the cursor could be moved without having to press control (-=+* then are accessed by the control keys - this can be toggled off or on at will), set margins with a command instead of a poke, change hex to decimal numbers or vice versa, and finally, there was a command to escape to resident monitor with 15 more commands. This is a monitor, not a debugger, since it lacks single step or stack monitoring commands. But it is a very decent monitor, with hex and ATASCII formats, display and alter the CPU registers, disassemble memory into assembly source language (to screen or printer), search for specific values or strings in RAM, and save or load machine code (from cassette), includeing copying single stage boot cassettes.

So what's new in MW II? Well, they finally got around to some of the functions I really consider handy. Now you can search and replace within your BASIC program - for anything, including variable names, text, values, etc. All of the MW II commands are one or two letter commands, you just prefix them with caret (^) to distinguish them from executable direct BASIC commands.

There's more. You can also MOVE or COPY a range of lines within a current program; you can look at your disk directory without leaving BASIC (just type >> or >>2 and hit return). You can toggle your printer on or off so that anything listed to the screen also goes to the printer. You can list your program prettily formatted so that multiple statements on a line appear indented, each on a separate line, for readability (the resident program is not altered by this). And oh, I forgot, if you just want to browse through your program there's no longer any need to keep listing line ranges - you can toggle into scrolling mode and use the yellow function keys to scroll either up or down through the program until you find the line you want. The frosting on MW II is that there is an excellant memory test included as a monitor command.

Physically the cartridge is also improved. No longer a bare board, it is high quality glass boarded, gold platted, and comes in a clone of ATARI's rugged plastic cartridge case (minus the sliding door at the bottom). This is good, because you must pull it out whenever you want to boot without BASIC - MW II demands a left cartidge in place or it becomes piqued and locks up the machine. (It doesn't care what cartidge - I fooled it with a PILOT one and some of the commands still worked.) The editing functions will only work under BASIC because they seem to operate by listing the program into some memory cache and operating on each line as it is converted to text, then feeding it in as a replacement BASIC line to retokenize it. You don't see this happening, but you will see BASIC's surprised ERROR messages if your changes create invalid syntax. (PILOT just said WHAT? WHAT?). There is a delay when operating on a long program, but typically on the order of 10 seconds or less, not long enough to be annoying.

I would have liked to use the editor, or at least the monitor of MW II under non BASIC envirnments, but then, I'm greedy. This is an impressive package if you're using ATARI BASIC, and a godsend of human engineering if you have only a cassette based 800. The only other disadvantage I'd note is that, like most utilities, MW II usurps page six, so you shouldn't run programs that want to poke their own tricky machine language subroutines into decimal 1536 and on up. This, unfortunately is very prevalent with the programs you buy or get from magazines. You can edit them, but be careful to save them and remove MW II before running them, or you are taking chances. For your own stuff, you can stay out of page six and enjoy the features MW II gives you.

## Mr. Cool

Reviewed by Anthony Reeves - WLAUG

The name of the game is MR. COOL by Sierra On-Line, Inc. Mr. Cool is a game that is very similar to the popular arcade game QBERT; by similar I mean that they are both based on the same idea. But I have seen Qbert for the 800 and I tend to like Mr. Cool much better. For those of you who have not seen Qbert, it is a game where a little fellow must jump from square to square and by doing so change the colors of the squares. In this Mr. Cool is very close to Qbert. However, Mr. Cool has a very different problem besides changing the colors of the squares for you see, Mr. Cool is an ice cube and below the squares is a pool of fire. There are also fire balls that shoot across from side to side and hot spring that fall from above.

The game itself has 15 rounds per level, and as far as I can see, the lvels go on forever. As one progresses on through the rounds the game gets harder and harder, to one point where the squares are not even there until you land on them.

Mr. Cool does have one defense. In each round you can push the button and change the fireballs to snowballs, and if you get six you get another man. The springs also change into cold springs and are worth 200 points, but be careful, they change back very fast! On a scale of 1 to 10, I give the game a 7.

## ATARI MICROSOFT BASIC II

by Arthur Leyenberger - JACG

The cartridge version of Microsoft BASIC (AMSB) has just been released by Atari. For $79.95 (list) you get a 16K cartidge, an extension diskette, a spiral-bound user manual, quick reference guide and brief overview.

First of all, when the cartridge and the disk are used together, this version of Microsoft BASIC is exactly the same as the previous disk-based version which was released about two years ago. The main difference is that Atari was unable to fit 18K bytes worth of AMSB into a 16K byte cartridge (understandingly enough). Therefore, the disk contains another 2K bytes worth of "extension" features. Fortunately, the extension disk is copyable under DOS so a backup can be made.

There are ten commands that did not make it into the cartridge. They are: AUTO - for automatic line numbering; DEL - for deleting individual or blocks of lines; RENUM - for renumbering lines; TROFF and TRON - for tracing (on or off) the sequential flow of a program; NAME...TO - for re-naming disk files from BASIC itself; VERIFY - for comparing a disk file with the current contents of memory; DEF - for defining numeric or string functions; NOTE - for obtaining the disk sector number and byte count of a DOS file; and PRINT USING - for formatted screen or printer output. Seven of these are development aids while three (DEF, NOTE, and PRINT USING) are used from within a program. However, once the extension disk is booted up, the entire language is memory resident.

The other major difference between this and the previous version of AMSB is the documentation. The user manual accompanying the previous release was adequate. The new documentation is excellent. Included within the user manual are tutorial sections on topics such as Player/Missile graphics and character graphics. The new user manual is also easier to understand. The PRINT USING statement was not covered very well in the old manual and was somewhat confusing. The section in the new manual pertaining to this command is much clearer and includes more examples. Especially helpful is the separate quick reference guide which is well organized and clearly presented.

In conclusion, the Atari Microsoft BASIC II language, documentation, and packaging are well done. For the serious ATARI computer programmer, AMSB is the way to go.

## NON-PROFIT YES or NO

by Staffan Sandberg, Editor

At the October meeting of the DC Atari Users Group, Peter Kilcullen and Bob Kelly, a two person committee established to investigate the legal and institutional arrangements necessary to establish the group as a non-profit organizational entity, discussed the pros and cons of such an arrangement. The potential benefits derived from establishing a non-profit entity are:

-Reduced bulk mailing rate for monthly newsletter, etc.
-Tax free purchases of capital equipment by club for internal use - disks, computer, etc.
-Ability to purchase "club buys" from local dealers on a tax free basis plus aboiding out-of-state shipping costs and undue time delays.

The possible drawbacks to such an arrangement are:

-Organizational and accounting procedures are required by law.
-A one-time dollar expenditure would be necessary for Federal and local fees.
-Compliance with Federal and local regulations would require time from individual club members.

It was decided that since the main reason for becoming a non-profit organization was to save money on mailing the newsletter, and because mailing the newsletter in such a way would take up to three weeks of postal time, that we not procede with these arrangements at this time.

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## LOGO CONTEST

The logo contest that was announced in the October issue of CURRENT NOTES has been extended until December 20 (or until we recieve some entries!).Remember, this is your newsletter, so send in your entry. It can be anything you want. You could design one to represent CURRENT NOTES, or one for each club to flank the title. Please send in your entries on an 8 1/2 X 11 sheet of paper to LOGO CONTEST, 11804 Magruder Lane, Rockville, MD 20852.

# TID BITS

## Scrolling Demo

Program by Stan Wiley, Jr. - A.C.E. July, 1983

```
0 REM ********************************
1 REM *   SCROLLING DEMONSTRATION    *
2 REM *                              *
3 REM *  (C) 1983 S.W. ENTERPRISES   *
4 REM *       BY STAN WILEY JR.      *
5 REM *     ALL RIGHTS RESERVED      *
6 REM ********************************
10 GRAPHICS 0:? "EXECUTION SPEED:(0-700);:INPUT E:GRAPHICS
0:? "JUST CALLED A GR. 0":W=32000:GOSUB W
20 DL=PEEK(560)+PEEK(561)*256:? "DL LOC.=";DL:?:?"mem loc.
contents"
30 FOR X=DL TO DL+31:? X,,PEEK(X):GOSUB W:NEXT X
40 ? "INCREMENTING SCREENRAM BY 920
BYTES":S=PEEK(DL+4)+PEEK(DL+5)*256:S3=S
50 FOR X=1 TO 22:S=S+40:S1=INT(S/256):
S2=ABS(S-(S1*256)):POKE DL+4,S2:POKE DL+5,S1:GOSUB W:NEXT X
60 ? "DECREMENTING SCREENRAM BY 920 BYTES"
70 FOR X=1 TO 21:S=S-40:S1=INT(S/256):
S2=ABS(S-(S1*256)):POKE DL+4,S2:POKE DL+5,S1:GOSUB W:NEXT X
80 ? " ":POKE 752,1: POSITION 0,12:? "SPACE BAR TO CONTINUE"
90 GOSUB 32010:RUN
31999 END
32000 FOR Z=1 TO E:NEXT Z:RETURN
32005 REM ******SCROLL SPEED******
32010 FOR X=1 TO 18:FOR Z=1 TO 20:NEXT
Z:S=S-1:S1=INT(S/256): S2=ABS(S-(S1*256)):POKE DL+4,S2:POKE
DL+5,S1
32015 IF PEEK(764)=33 THEN RETURN
32017 NEXT X
32019 REM ******SCROLL SPEED******
32020 FOR X=1 TO 18:FOR Z=1 TO 20:NEXT
Z:S=S+1:S1=INT(S/256): S2=ABS(S-(S1*256)):POKE DL+4,S2:POKE
DL+5,S1
32025 IF PEEK(764)=33 THEN RETURN
32027 NEXT X:GOTO 32010
```

---

## Disk Directory Correction

1) Call up DOS
2) Turn on the printer
3) Type A and press RETURN
4) Type ,P: and press RETURN

## ROM B Peek

by Tim Kilby - Novatari

Do you have the new operating system in your ATARI? A simple test will determine which version, revision "A" or revision "B", you have. PEEK(58383) will either yield 56 for revision "A", the older O/S, or 0 for revision "B", the new O/S. Revision "B" was introduced in December 1981. The new O/S fixes some of the minor bugs in the earlier O/S, most noticibly, devices that die momentarily.

The new O/S is available as a "personality" board for $19.78 and has the part number CA014803. Simply remove the old board from the 10K ROM cartridge and replace if with the new one.

---

## Miner 2049er Tip

by Arthur Leyenberger - JACG

If you would like to go directly to any level in Miner 2049er then do the following: Go to the first platform above ground level and move to the far right side of the screen. Then, type 2137826861. Now press [SHIFT] and the level that you wish to go to and you will change levels instantly. You can continue to chage levels from anywhere in any level by simply pressing [SHIFT] level #. No need to type in the 10 digit number after the first time.

---

## Cylenders for GTIA

from Page 6 - Stafford, U.K.

```
5 REM **    CYLINDERS    **
6 REM ** by Phil Griffin **
10 GRAPHICS 9:SECOLOR 4,1,0:Y=8
15 X=0:Y1=180
20 A=1:B=15:C=1:GOSUB 100
30 FOR Y=18 TO 58 STEP 10
35 Y1=Y1-10:GOSUB 100:NEXT Y
40 FOR K=1 TO 3:FOR Z=0 TO 3
45 SETCOLOR 4,Z,0
50 FOR T=1 TO 1000:NEXT T
55 NEXT Z:NEXT K:GOTO 10
100 FOR K=1 TO B STEP C
110 K1=K:IF K>12 THEN K1=12
120 COLOR 15-K:PLOT X,Y-2-K1/3
130 DRAWTO X,Y+K1/3:COLOR K
140 PLOT X,Y+1+K1/3
150 DRAWTO X,Y1+K1/3:X=X+1
160 NEXT K:RETURN
```

## PERCOM UPDATE

by Steven Dayan - WLAAUG

I've had my Percom for close to a year now, and I'm happy I made the purchase. But what are the advantages and disadvantages of the Percom Drive?

As you probably know, the Percom is a double density disk drive. The advantage to this is that you can store twice as many bytes of information (176K) on a disk as you can with an 810. But some of you are probably saying, "Yeah, but you can't use DOS 2.0S, you've got to use the modified DOS that comes with the Percom, (2.1P). Well that's true, however I've discovered that Percom now sells a patch for DOS 2.0S so you can use it in the double density mode. There is another company called BJ Smartware that also sells a DOS patch. I haven't tried it but I believe it sells for $40.00 (BJ's address and Percoms phone number can be found at the end of the article).

Transferring a file from single density to double density with a Percom can give you a headache (or simply transferring a file!). You have to boot up DOS 2.0S and then use the Percom supplied disk in order to transfer a file. Just another step, and it's a hastle.

The reason I bought the Percom was that for about the same cost as two 810's I could buy two Percoms that were double density to boot! Another plus for the Percom is that it is much quieter than the 810 and I appreciate that when I'm at the computer for long periods of time.

I'm sure you've heard that the Percom won't run certain software. Certain software manufacturers check the speed of the drive as a copy protect measure. When Percom originally shipped the drives they were set at 301 RPM (Revolutions Per Minute) but to alleviate this problem the drives are now set at 295 RPM.

As to writing on the back of disks, it certainly is not as easy to do as with the 810. The Percom must assess the center eyelet, so you must make another eyelet opposite the original one on the disk (front and back). You must be very careful when making the holes because you've got to get the hole puncher under the sleeve and you could damage your disk. The first step is to make a template. You can use an old disk or in my case, a disk cleaning jacket. Once you've made the template the next step is to place it over your disk and mark the center eyeley hole opposite the original one on the front and back. I recomend using a felt tip pen to mark the holes, and be sure you don't press down too hard on your disk. Once you've done that there is only one other hole to punch, and that's the write protect notch across from the original one. Now that all the holes are marked you can puch them out, however you must insert a small piece of stiff paper (postcard thickness) and slide it under the hole you marked to protect the surface of the disk. I had to use a pen (or something pointy) to lift the sleeve up high enough to get the hole puncher over the hole I had marked. Not carefully and gently punch the holes out. Remember to puch out the new write protect notch as well.

I recomend you try this on just one of your disks, and preferably on a blank disk so that you don't accidentaly damage it. I know it's not as easy as doing it on an 810, but I did all my disks in an hour and saved myself at least the cost of a box of disks. I also better organized my library in the process. One last tip, if after you prepare your sample disk and it won't format, don't fret. It has been my experience that all you have to do is make the new write protect notch a little larger.

Steve Kaufman
BJ Smartware
6507 Bracken Ridge
Cincinnati, OH 45213

PERCOM toll free number
1-800-527-1222

---

## CURRENT CORRECTIONS

In the October, 1983 issue of CURRENT NOTES, line 420 of David W. Bashs' "Another Print Using Subroutine" came was printed incorrectly. It was printed as:

```
420 ND=2:NUM=NUM2:POS=20:GOSUB 200:TRAP 300:? P 4000
```

The correct line 420 is:

```
420 ND=2:NUM=NUM2:POS=20:GOSUB 200:TRAP 300:PRINT
#D;TAB$(1,TAB-1);"$"; NBR$(1,LNTH+2);:TRAP 40000
```

Sorry about any inconvenience this may have caused.

---

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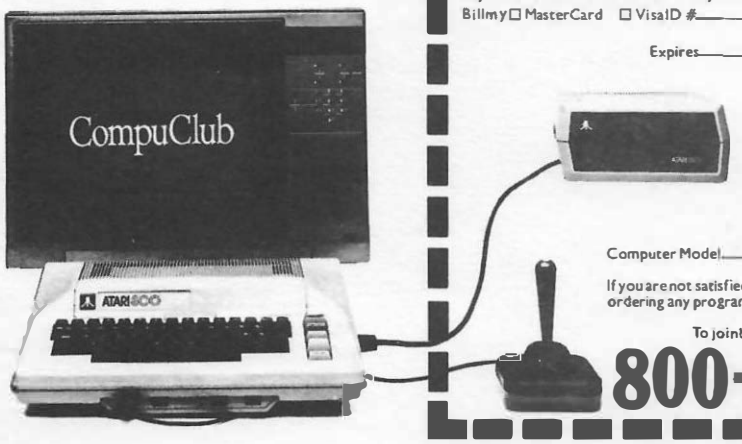


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